



THE HANFORD SITE

Proposed Permit Modifications for Leak Detection Upgrades at the 242-A Evaporator and the Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

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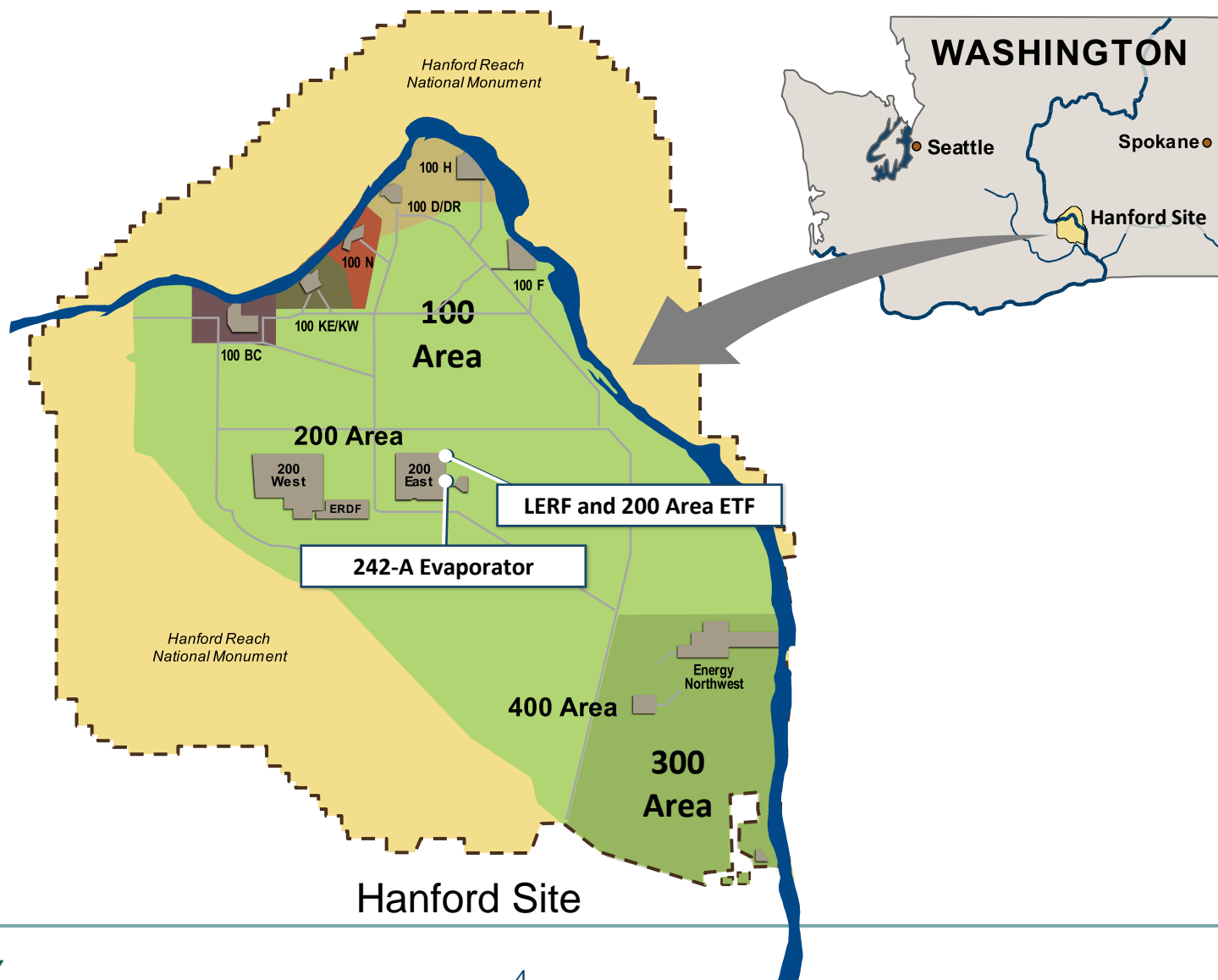
Direct-Feed Low-Activity Waste Configuration



Regulatory Framework for Permitting Action

- The *Resource Conservation and Recovery Act* Hanford Dangerous Waste Permit governs dangerous waste treatment, storage and disposal at the Hanford Site
- The Washington State Department of Ecology (the regulator) issued the current Hanford sitewide permit (Revision 8C), which governs dangerous tank waste treatment, storage and disposal
- DOE and contractor Washington River Protection Solutions (the permittees) are proposing the following:
 - Class 2 permit modification to the 242-A Evaporator permit, Operating Unit Group (OUG) 4
 - Class 2 permit modification to the Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (ETF) permit

Facility Locations



Waste Treatment and Immobilization Plant DFLAW Liquid Waste: Background

Some of Hanford's tank waste will be vitrified (immobilized in glass) during DFLAW by using select facilities at Hanford's Waste Treatment and Immobilization Plant (WTP).

The glass-making process will generate liquid waste that requires further treatment. This liquid waste will be transferred by a WTP primary transfer line and a backup transfer line.



Historical photograph of installation for the WTP backup transfer line

242-A Evaporator: Background

The 242-A Evaporator removes water from double-shell tank (DST) waste

Operation of the evaporator produces two streams:

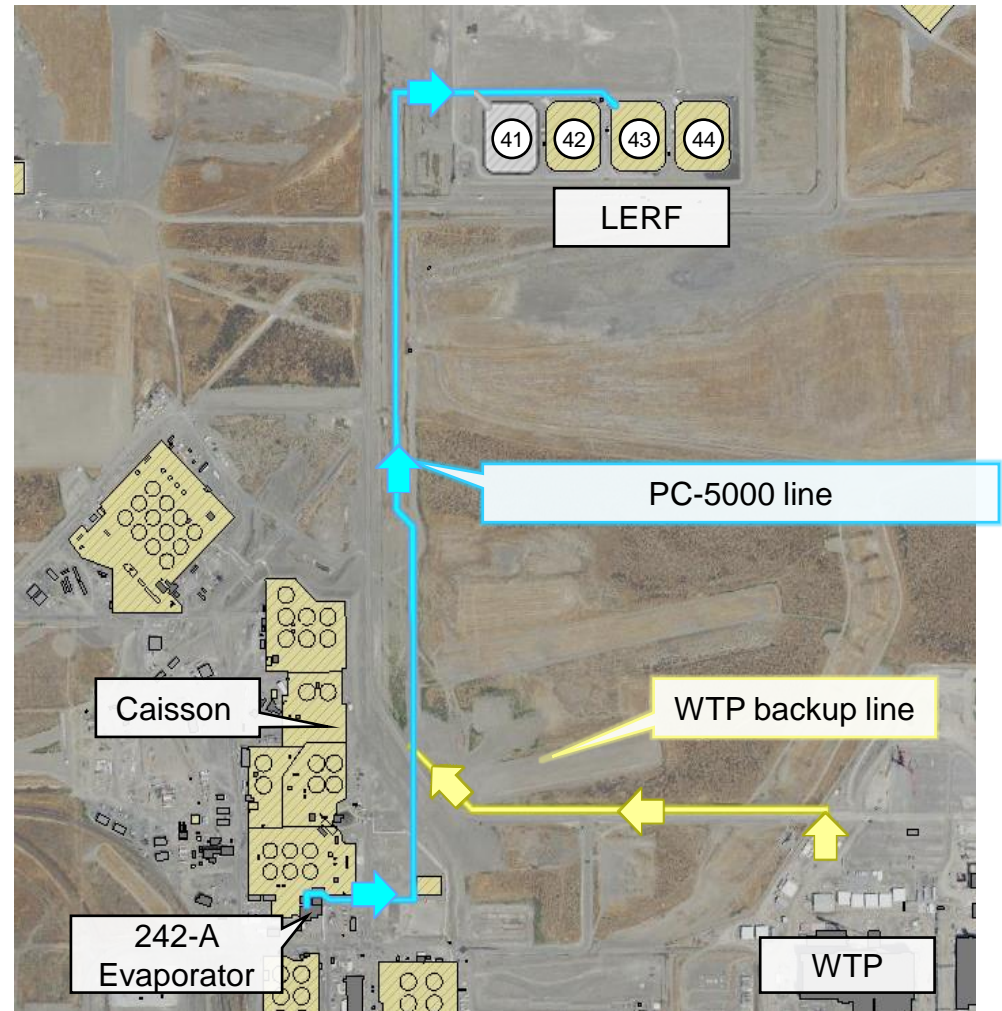
- A concentrated slurry stream is routed back to the DST system for storage pending further treatment
- A process condensate stream is transferred through an encased underground pipeline to the LERF



Exterior view of Hanford's 242-A Evaporator

242-A Evaporator: Background (cont.)

- The PC-5000 transfer line leaves the 242-A Evaporator and ends at LERF Basin 43 (or Basin 41)
- The WTP backup transfer line leaves the WTP and merges with the PC-5000 transfer line at a caisson
- The transfer line system includes existing end-of-line electronic leak detectors and visual sight glasses at the LERF



Transfer line system elements, 242-A Evaporator

LERF and 200 Area ETF: Background

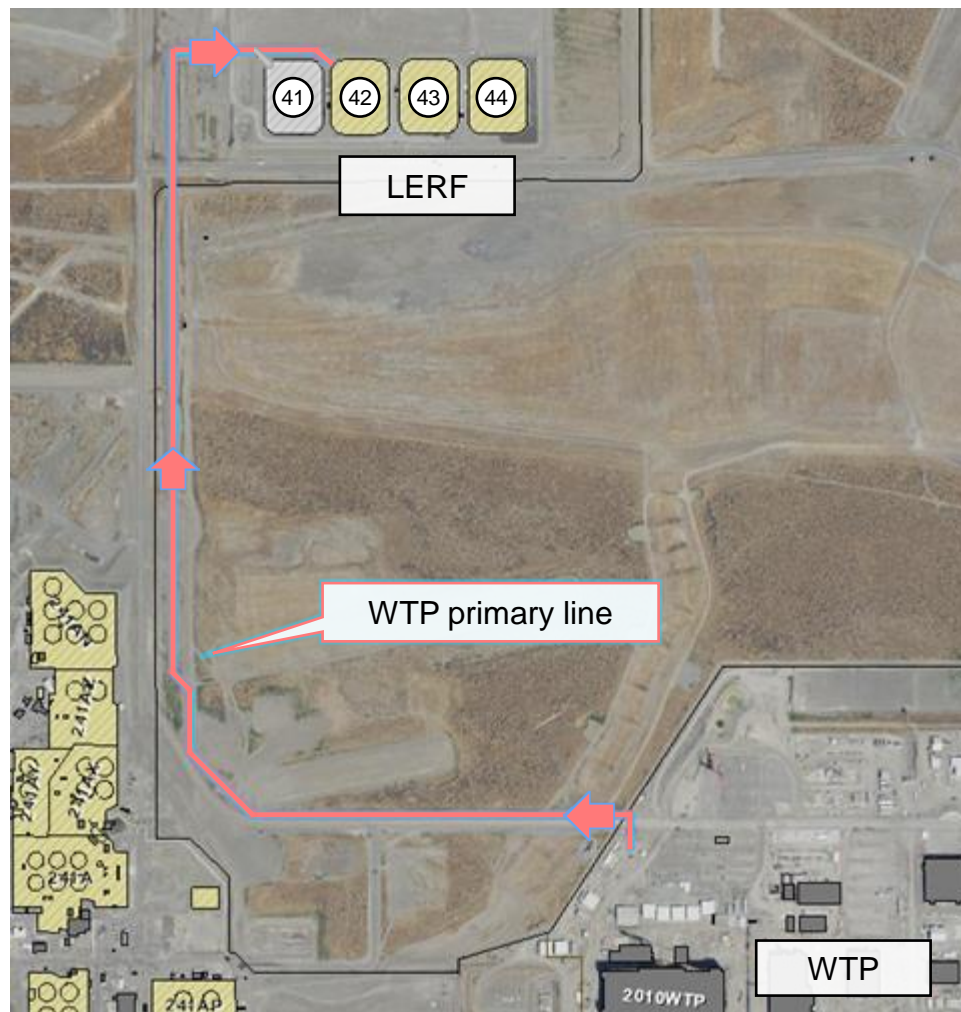
The LERF and 200 Area ETF work to store, treat and dispose of large volumes of liquid waste. Upon startup of DFLAW operations, WTP DFLAW liquid waste will be transferred through an encased underground pipeline to the LERF.



Aerial view of the LERF (top) and 200 Area ETF (bottom)

LERF and 200 Area ETF: Background (cont.)

- The WTP primary transfer line leaves the WTP and ends at LERF Basin 42 (or Basin 41)
- The transfer line system includes existing end-of-line electronic leak detectors and visual sight glasses at the LERF



Transfer line system elements, LERF and 200 Area ETF

Purpose of the Modification: Permit Conditions

Each facility's permit includes Unit Specific Conditions:

- For the 242-A Evaporator, the permittees must upgrade the existing leak detection system to include the installation of additional leak detectors along the PC-5000 and WTP backup transfer lines, and in the caisson
- For the LERF and 200 Area ETF, the permittees must upgrade the existing leak detection to include the installation of additional leak detectors along the WTP primary line
- The permittees must submit a permit modification for upgrades to the leak detection systems. The permit modifications must include the final design of the upgrades.
- The upgraded leak detection system must be operational prior to liquid waste transfers

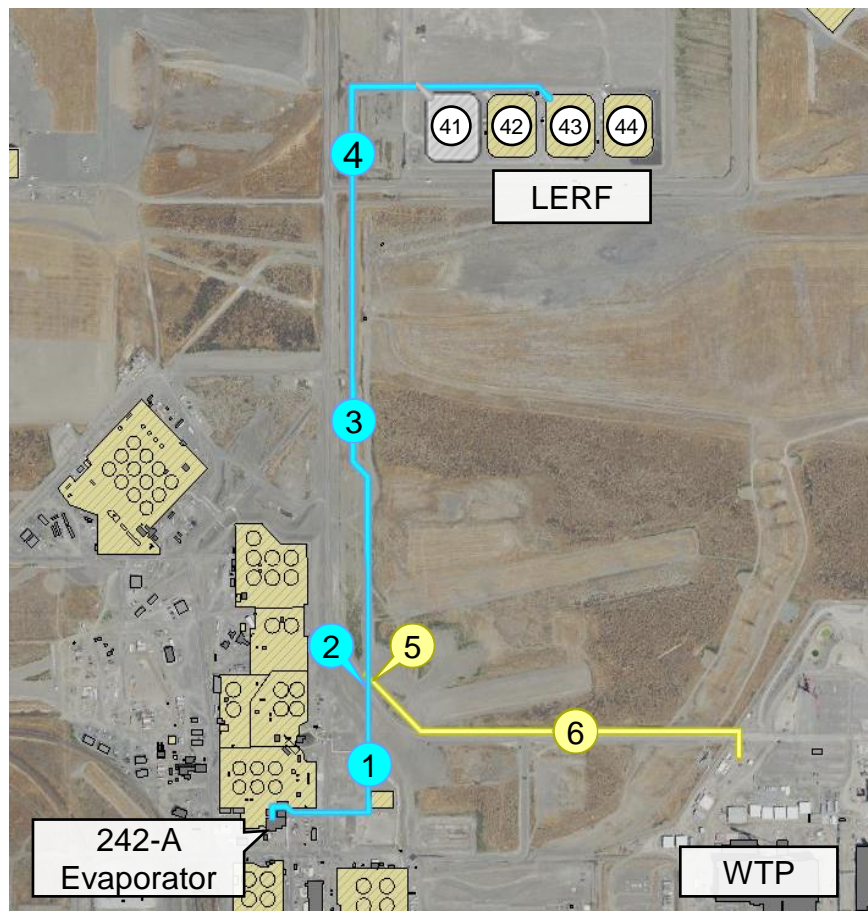
Proposed Modification: In-Line Leak Detectors

The permittees have completed a final design for the installation of a new in-line leak detection system upgrade. The proposed upgrade would include the following:

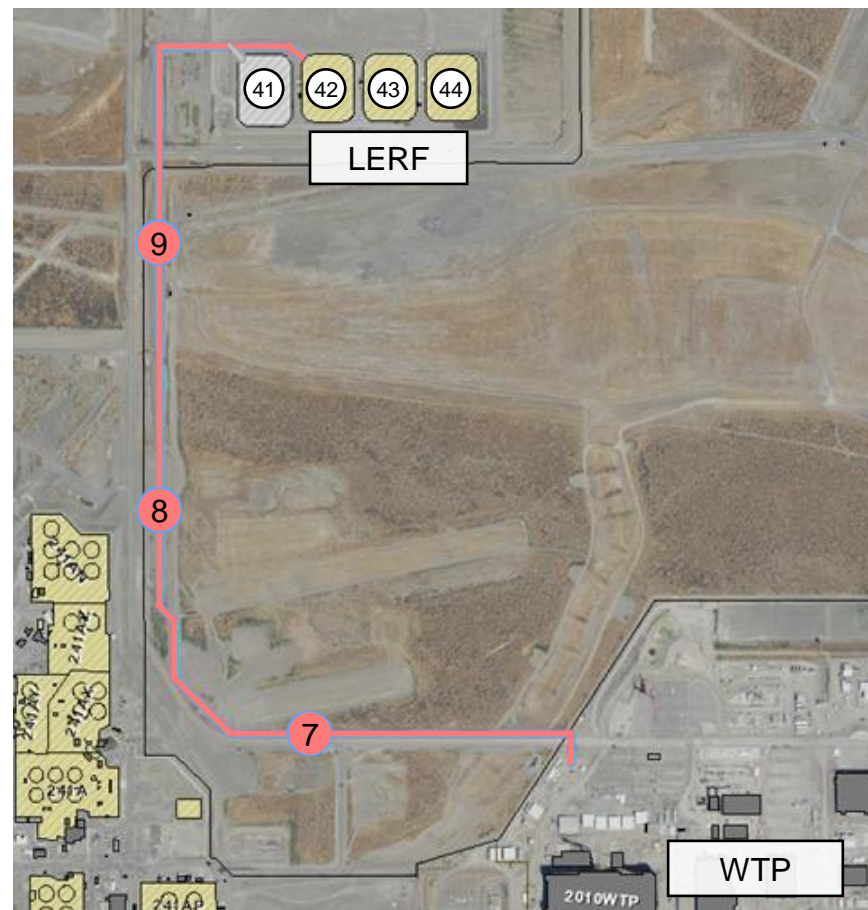
- Nine new in-line wireless leak detectors with alarm logic
 - Six within the 242-A Evaporator, OUG 4 (PC-5000, WTP backup line, caisson)
 - Three within the LERF and 200 Area ETF, OUG 3 (WTP primary line)
- One new wireless base station

The wireless leak detectors will send data to the Tank Farms Monitor and Control System for display of potential alarm(s) at manned control rooms.

Proposed Modification: In-Line Leak Detectors

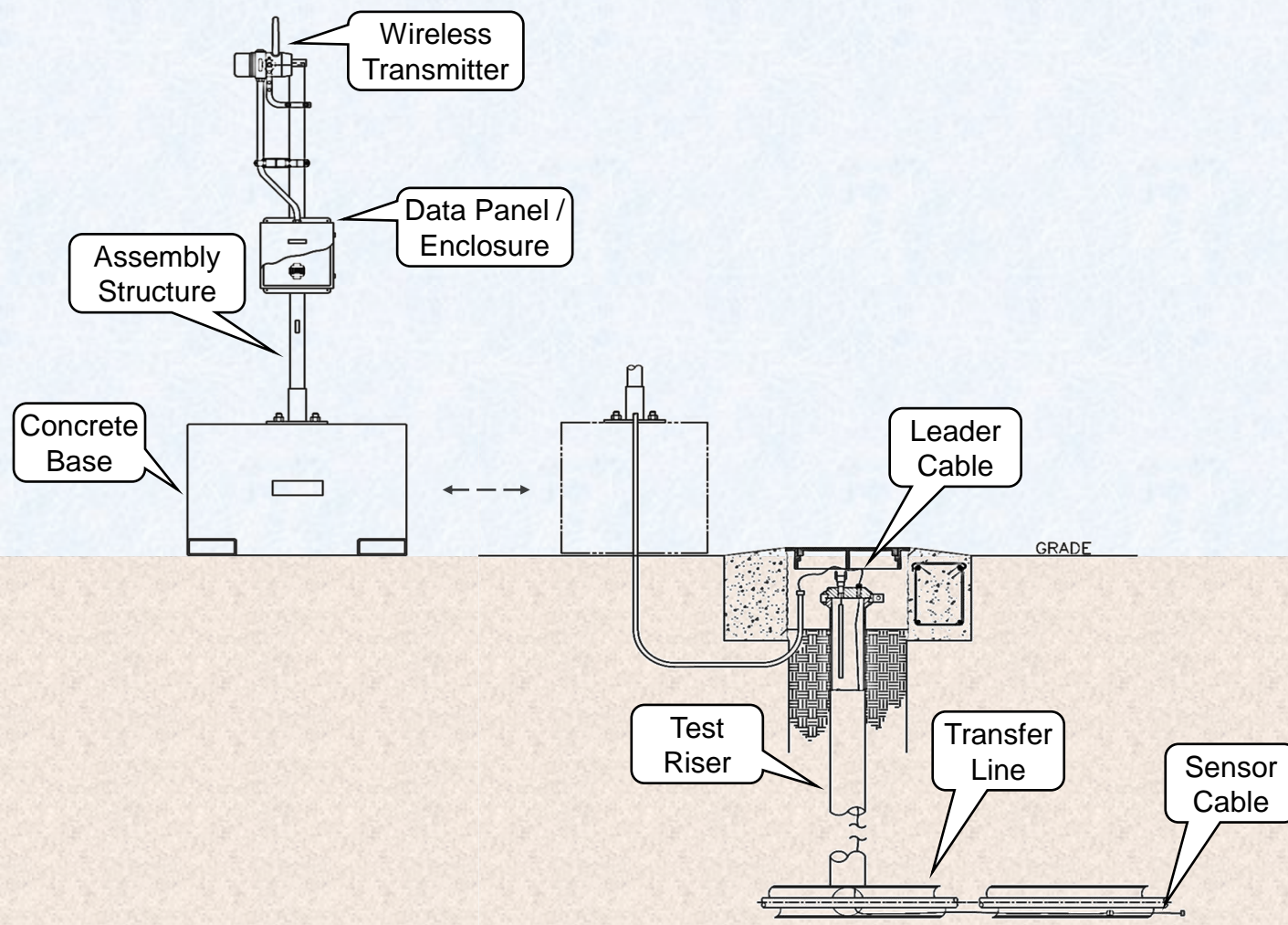


Approximate locations of in-line leak detectors for the 242-A Evaporator



Approximate locations of in-line leak detectors for the LERF and 200 Area ETF

Proposed Modification: In-Line Leak Detectors (cont.)



Schematic view of proposed in-line leak detection

Changes to the Hanford Sitewide Permit (Revision 8C) for the proposed permit modifications include the following:

- 242-A Evaporator, OUG 4
 - Unit-Specific Permit Conditions
 - Chapter 4.0, “Process Information”
 - Chapter 6.0, “Procedures to Prevent Hazards”
- LERF and 200 Area ETF, OUG 3
 - Unit-Specific Permit Conditions
 - Addendum C, “Process Information”
 - Addendum I, “Inspection Requirements”

Refer to the corresponding Hanford Dangerous Waste Permit Change Notice for a full description of the proposed changes.

- Two Class 2 Permit Modifications
- Both 60-day public comment periods open through May 14, 2022
- Submit comments via mail or electronically (preferred) to the Washington State Department of Ecology at the address below:

Daina McFadden
Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, WA 99354



242-A Evaporator, OUG 4

<https://nw.ecology.commentinput.com/?id=kbUAg>

LERF and 200 Area ETF, OUG 3

<https://nw.ecology.commentinput.com/?id=FBZks>

Questions?



The Hanford Reach
White Bluffs Overlooking the Columbia River